Network Working Group
Request for Comments: 807

J. Postel
ISI
9 February 1982

Multimedia Mail Meeting Notes

Introduction

A meeting was held at USC Information Sciences Institute on the 12th of January 1982 to discuss multimedia mail issues and experiments. The list of attendees is at the end of this memo.

Overview:

This meeting was called to discuss common interests in multi-media computer mail experiments, and to agree on some specific initial experiments.

Review of Status:

Review current status of multimedia efforts at CMU, ISI, MIT, COMSAT, BBN, UCL, SRI.

CMU

Using PERQ, Quip for fax, LPCM vocoder from LL, will get NEC board (3 chips) to replace vocoder. Will have a stand alone voice I/O device that operates at 2400 baud (not packetized). Not working on IP/TCP. Will use the IP and TCP from the BBN project. Already using the BBN Jericho developed Pascal IP and CFTP. Interested in word recognition of LPC digitized voice data. Planning to package a synthesiser, an analyzer, and a pitch tracker on one board.

ISI

Using TOPS20 (code in BLISS10), and starting to use PERQ (code in Pascal), RAPICOM 450 for fax. Main interest is in the data structuring and message transport protocols.

MIT

Using Apollos, will program in MDL. Use of Apollos still limited due to (1) MDL not completely implemented, (2) network interface not yet available (waiting on multibus to then interface to Ethernet). Will get NEC CCITT fax machine. Looking into VAX+BBN BitGraph for future. Main work to date in design for sharing message data in a conceptualy centralized filing system. Emphasis

on efficient storage and manipulation of multirecipient messages, enclosures, citations, etc.

COMSAT

Using small 11s, Rapicom 450 and 500 fax machines, also have some LPC vocoders. Substantial work has been done on encoding and decoding both Rapicom 450 and CCITT T.4 fax data, and also on manipulation of bitmap data (See RFC 803).

BBN

Using Jericho (code in Pascal). Will be building a prototype system with the aim of investigating problems of data distribution and privacy. Trying to produce portable software currently in Pascal but may switch to ADA in the distant future. Have IP and CFTP running, working on TCP. CFTP is a file transfer built directly on IP.

UCL

Using LSI-11, Rapicom 450 fax machine, Grinell bitmap display. May get PERQs (produced by ICL) in future. Have done quite a lot of work on encoding/decoding for the Rapicom 450, and in bitmap manipulations (e.g., cleanup of noise, scaling, cut and paste). Interests in the relation of other types of display protocols to multimedia effort e.g., VIDEOTEXT and TELETEXT.

SRI

There are three multimedia mail projects at SRI,sponsored by DCEC, ARPA, and NAVELEX. SRI is a subcontractor (with Sytek and DTI) to SDC in the DCEC program to produce protocol specifications for the DoD. SRI has written service specifications for a mail system similar to RFC759+767 with security features added. The ARPA project is studying the issues involved in a multimedia mail architecture based on RFC759+767, including negotiations, envelopes, and multilevel security. The NAVELEX project is investigating user interfaces for command and control workstations, including natural language access to a data base. The plan is to use RFC759+767 data structures to communicate text and graphics, implemented on Foonly F-5s running Tenex with Foo-Vision displays. The current choice for the graphics protocol is Bisbey's GL2.

Discussion:

Coding/Decoding Algorithm:

We agree to use the encoding specified in the CCITT T.4 recommendation for the exchange of black and white bitmap data.

New Equipment:

It is reported that soon NEC will have CCITT T.4 Group 3 Fax machines for about $15K.

NBS Mail Standard:

The possibility that the NBS Mail Format Standard is a workable alternative to the RFC759+767 protocol is to be studied. What is the relationship between these standards? Do we have comment on the NBS Standard to submit to NBS?

Equipment Variations:

What happens if the receiver does not have equipment capable of protraying some of the data (e.g., dosen't have a LPC vocoder)? There are three subtopics: How many "standard" forms are allowed?, What do you tell the user if you can't do it?, and How does the cost of a medium (in memory or cpu cycles or portrayal time) effect its use? The general feeling was that if there is some type of data the receiving system can't portray, it should simply tell the user "There is some data here I can't portray and it's type is x.". The other aspects are items for further study.

Negotiation:

Does negotiation make sense in a mail system? What are the kinds of things to be negotiated? One possiblity is to initially send only pointers to the sections of a message, and have the recipient system ask for the parts it can handle. Does this make sense in a message relaying environment? Or for messsages with a fine scale interleaving of media types? This topic is for further study.

Enclosures, Pointers, Cross References:

This seems too complex to handle at this meeting, so for now send the whole thing. This is an item for further study.

Editing Multimedia Objects:

This is one of the most interesting parts of these research

projects, so each group will develop their own techniques, and we will compare notes.

Manipulation of Bitmaps:

The issues involve aspect ratios, cut and paste, rotation and, scaling. We need to compare notes and exchange algorithms. An item for further study.

Mailbox IDs and Control Information:

With different types of source hosts and destination host (timsharing systems, personal computers) and different types of mail delivery schemes (append to file, query database server), do we have sufficient control mechanisms and addressing modes? This is an item for further study.

Storage and Transmission:

How do the requirements for memory, disk, cpu, and transmission capacity differ for multimedia mail from text mail? This is an item for further study.

Multimedia Virtual Message Format:

It is not clear that this is anything different than what is specified by RFC759+767, but since it was not fully discussed it is an item for further study.

Media Specific Protocols:

Specific format definitions are needed for each media. This is an item for further study.

Interfaces to Other Systems:

How do we interface this multimeda system to opther systems (e.g., TELETEXT, VIDEOTEXT), and to text only mail systems (e.g., ARPAMAIL, TELEMAIL, ONTYM). This is an item for further study.

An Experiment:

BITMAP-TEXT DOCUMENT EXCHANGE

Move the data between computers as a file, using any file transfer method available.

The File is a complete RFC 759 Document.

Bitmap data is in revised COMSAT Image Data Format.

Two compression types are to be used:

Raw Bitmap

CCITT Algorithm

Text data is in RFC767 Paragraph Format.

Action Items:

Start a New Note Series

For the exchange of protocols, formats, algorithms, procedures, and other information between the multiamedia mail projects.

By: Jon Postel

Due: 1-Feb-82

Update RFCs 759 & 767

To remove typos and clairfy ambiguities.

By: Jon Postel

Due: 1-Feb-82

Update "Image Data Structure" Memo

To be more generally for bitmaps and not so focused on fax only.

By: Anil Agarwal

Due: 1-Feb-82

Compare and Contrast NBS Mail Standard with RFC 759+767 Protocol

Would the NBS Mail Standard be an adaquate alternative to the RFC 759+767 approach?

By: each site

Due: Unspecified

Issue the NBS Mail Standard as an RFC

To aid in wide consideration of it. (Where does the online file come from?)

By: Jon Postel

Due: Unspecified

Report on the differences between the NBS Mail Standard and other things.

What are the differences between the NBS standard and the RFC759+767 protocol?, the IFIP plans?, the CCITT plans?, and the ISO plans?

By: Debbie Deustch

Due: Unspecified

Demonstrate FAX-TEXT Document Exchange

This demonstration is to be ready before and repeated at the User Interface Meeting at CMU.

By: all sites

Due: 19-20 April 82

Attendees:

Duane A Adams	DARPA/IPTO	Adams@ISI	(202) 694-8096
Vint Cerf	DARPA/IPTO	Cerf@ISI	(202) 694-3049
Harry Forsdick	BBN	Forsdick@BBN	(617) 497-3638
Bob Thomas	BBN	BThomas@BBND	(617) 497-3483
Gene Ball	CMU	Ball@CMUA	(412) 578-2569
Anil Agarwal	COMSAT	Agarwal@ISID	(301) 863-6103
David L. Mills	COMSAT	Mills@ISID	(202) 863-6092
Dave Lebling	MIT	PDL@MIT-XX	(617) 253-1440
Jon Postel	ISI	Postel@ISIF	(213) 822-1511
Greg Finn	ISI	Finn@ISIF	(213) 822-1511
Alan Katz	ISI	Katz@ISIF	(213) 822-1511
Carl Sunshine	ISI	Sunshine@ISIF	(213) 822-1511
David Elliott	SRI	wde@SRI-KL	(415) 859-4107
Andy Poggio	SRI	Poggio@SRI-Unix	(415) 859 5094
Zaw-Sing Su	SRI	ZSu@SRI-Unix	(415) 859-4576
Steve Kille	UCL	UCL-Netwiz@ISIE	(uk) (01)387-7050
Peter Kirstein	UCL	PKirstein@ISIA	(uk) (01)387-7050
Bill Tuck	UCL	UKSAT@ISIE	(uk) (01)387-7050